Operator Training

Basic Corrosion Protection

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health
and Environmental Control

Corrosion

Corrosion is defined as the breakdown of a material due to a reaction with the environment. In other words, rusting. Corrosion is a natural process that occurs when steel or other metal is exposed to the environment.

Corrosion

Parts of a tank system that routinely contain fuel and are in contact with the ground or water must be protected from corrosion.

Two Types of Corrosion Protection:

- Passive Protection
- Cathodic Protection

Corrosion Protection - Passive Protection

Passive protection is achieved by using materials that will not corrode such as fiberglass and plastic.

Corrosion Protection – Passive Protection

Placing sumps or pans around metallic materials is also considered passive protection.

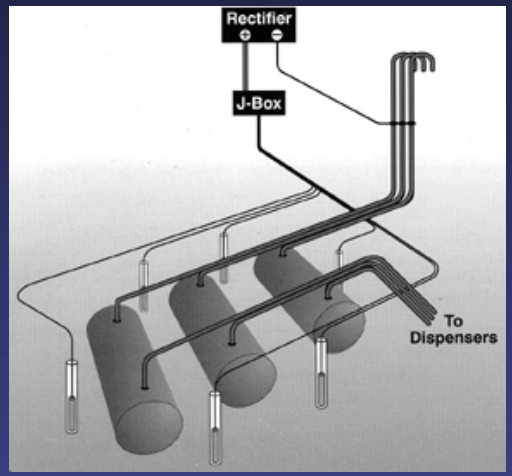
New tank systems typically use passive protection.

Submersible turbine pump and piping in a sump

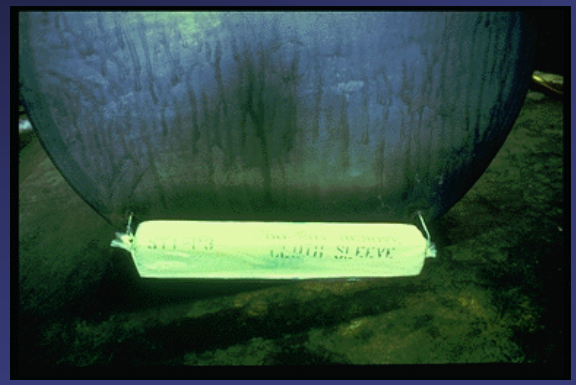
Zip-boot on metal flex connector

Cathodic Protection

Cathodic protection is achieved by installing electrical systems and/or coatings on metallic structures to prevent them from corroding. Cathodic protection is typically installed on older systems.



Impressed Current Cathodic Protection

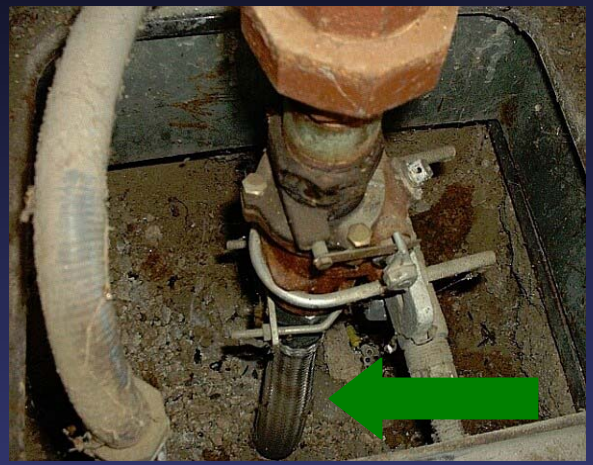


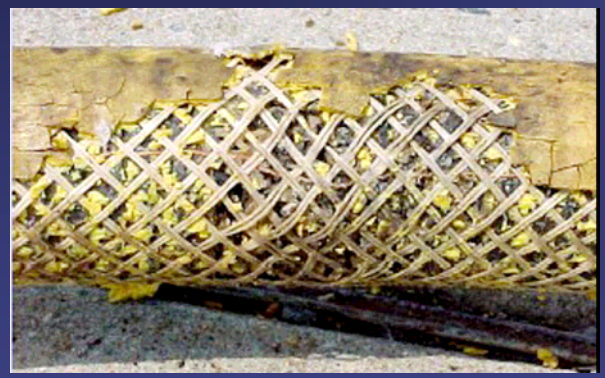
Sacrificial Anode Cathodic Protection

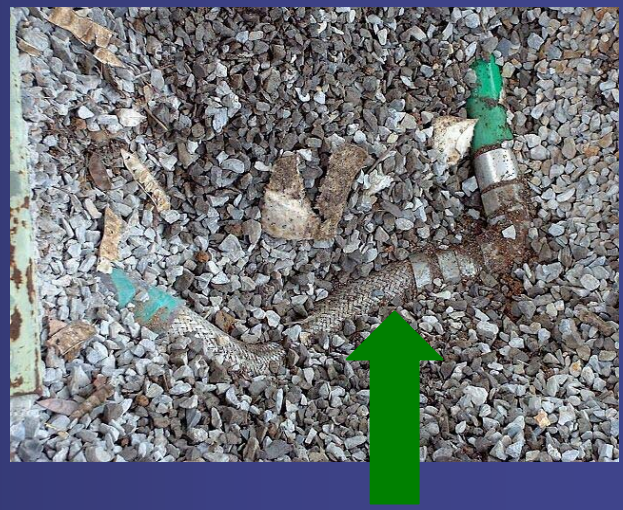
Internal Lining

More information on these types of cathodic protection can be found in additional modules.

Steel Flex Connectors







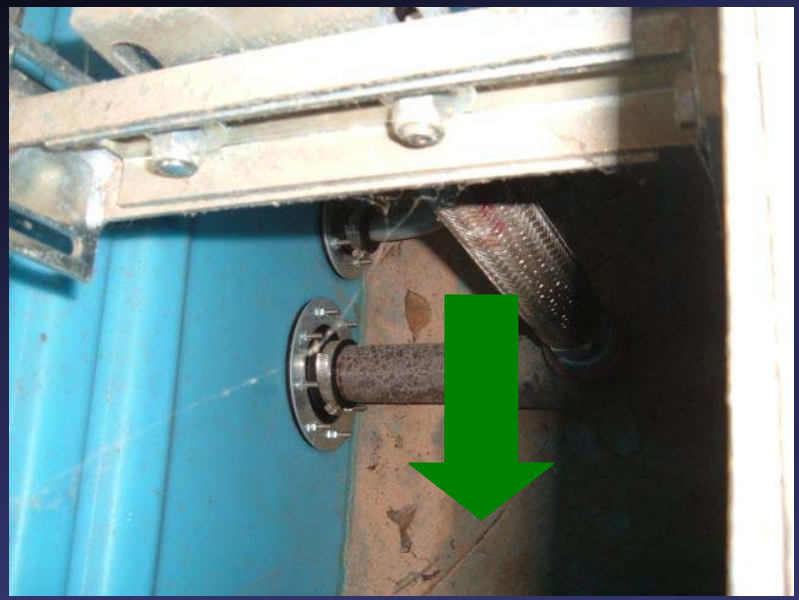
A special concern is to provide corrosion protection for steel flex connectors and metal swing joints under dispensers and at the submersible turbine pumps where piping connections occur.

Steel Flex Connectors

Metal flex connectors and swing joints must be protected from corrosion by one of the following methods:

- Isolate from the environment
  - Zip-Boot
  - Remove soil in contact with flex
- Add cathodic protection
- Keep in clean, dry sump

Steel Flex Connectors



Dry sump

Sacrificial Anode

Booted flex